

Integration of Pharmacology into a Dental School's Problem Based Learning Curriculum

K.S. Gregson, PhD; L.M. Romito, DDS, MS; L.P. Garetto, PhD

Indiana University School of Dentistry

Indiana University – Purdue University Indianapolis

Abstract

The purpose of this study is to determine student perceptions of the methods used to teach pharmacology content via Problem Based Learning (PBL) cases with respect to student: comprehension application of pharmacology content, confidence in their own pharmacology knowledge after completion of PBL instruction, and confidence in treating clinical patients who are taking multiple medications. Our hypothesis is that the most effective presentation of pharmacology content is one that focuses on broad drug classes and includes: a pharmacology assignment, a post- assignment group discussion and consensus, and a graded group response for the assignment. At Indiana University School of Dentistry (IUSD) the subject of pharmacology is introduced near the end of the first semester, as a module called Pathology and Pharmacology in a larger course, Systems Approach to Biomedical Sciences. This basic introduction to pharmacology includes five lectures concerning pharmacodynamics, pharmacokinetics, therapeutics and prescription writing. Subsequently, students are exposed to pharmacology again during the third year, when the Pharmacotherapeutics Module is presented as part of a larger course, Dental Sciences III. The Pharmacotherapeutics Module is an intense 16 week lecture-based class, a “bolus” of pharmacology. PBL can be a bridge to impart more pharmacology knowledge to the students to prepare them for the Pharmacotherapeutics Module in the third year. Three teaching strategies were integrated into PBL cases over the last three years; (1) the “Basic 5”, (2) emphasis on pharmacodynamics/pharmacokinetics and (3) homework.

The goal of this study was to identify which teaching strategy students perceived to be the most effective means of using PBL to facilitate the learning of pharmacology material. A trend in the data shows the closer the student is to graduation the less they valued the pharmacology knowledge taught in PBL. Their responses seem to indicate that the newer teaching methods, a pharmacology assignment, a post- assignment group discussion and consensus, and a graded group response for the assignment employed in PBL cases lead to better understanding of pharmacology concepts and confidence in the students own pharmacology knowledge.